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**Does Homeownership Harm Labour Market  
Performances? A Survey**

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# Does Homeownership Harm Labour Market Performances? A Survey<sup>☆</sup>

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## Abstract

While many countries have implemented various incentives to promote homeownership, this paper investigates the literature on the relationship between this residential status and the labour market performances. Since the rather negative original contribution by [Oswald \(1996\)](#), the literature has been extending the analyses to more precise measures of labor markets performances, to more subtle descriptions of residential status and to more sophisticated econometric techniques on individual data. Overall, the Oswald's hypothesis finds little support.

*Keywords:* housing tenure choice, Oswald's hypothesis, labour market transitions, wages

*JEL:* R21, J6, J2, J31

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## 1. Introduction

During the last twenty years, homeownership has become more popular than rental in OECD countries. Germany is an exception since the ownership rate

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has been less than 50% since the eighties. In other countries, this rate has been increasing, particularly in Belgium, Portugal, the United Kingdom, Spain and the Netherlands with increases larger than 10% in two decades. Spain experienced an especially strong increase that lead to the highest homeownership rate (85%), followed by Greece and Italy (83 and 80% respectively). The higher rates tend to be located in the South of Europe, the anglo-saxon countries (69% in the UK and 68% in the US) and Norway (77%) (Catte et al., 2004, p.154).

In most OECD countries, different policies tended to favour homeownership. For instance, this can be implemented by some kind of tax relief for mortgage interest payments, low tax rates on imputed rents, exemptions for capital gains on houses or on donations and inheritance. Moreover, many European countries have used subsidies for low-income families to reduce the costs of homeownership (Belot and Ederveen, 2005). Simultaneously, the pro-cyclical behaviour of banks contributed to this development with lower interest rates, longer loan maturity, lower downpayment requirements and variable rate mortgages.

A vast literature has shown interest on these subjects. Some papers have tried to describe the evolutions of the housing market and housing prices along with the implementation of those policies. Others have adopted a more general analysis by studying the indirect effects of these measures influencing residential status. This research implied several fields: economics, sociology, demographics, education or political science. For example, it was shown that homeowners were different from renters in terms of portfolio choices, risk management, job mobility, environment, segregation, child outcomes, *etc.* Homeownership also seems to have an impact on health, fertility, criminality, urban structures or even political activities (Dietz and Haurin, 2003). In order to know whether these public strategies that play in favour of the creation of a nation of homeowners deserve pursuing, all indirect consequences must be assessed. In particular, it seems crucial to analyse the nature and the direction of potential links between residential status and careers. Such measures could indeed be challenged if they result in higher unemployment rates or worse performances of labour market. On the contrary, they would be strengthened if they increased the number of jobs or individual satisfaction.

This article surveys the contribution of economic theory to the understanding of the consequences of homeownership on labour market. After having separately studied issues on employment and housing for a long time, the economic analysis recently developed both empirical and theoretical analyses mixing labour and housing economics. They are mainly interested in the effects of residential choices on individual outcomes on labour markets: labour supply, duration of unemployment, job transitions or wages. These studies should allow to learn an interesting lesson about the desirable coordination between public housing and

employment policies.

These papers start from two fundamental features of homeownership to account for differences in behaviour as a function of residential status. First, homeowners have a larger financial responsibility than renters. The ownership of dwelling represents a considerable portion of household wealth and its sell can result in capital gains or losses. Furthermore, in most cases, individuals willing to purchase their residence have to borrow money. This long-term financial constraint can alter their behaviour on the job market relative to their renting counterparts. Secondly, ownership is associated with much higher transaction costs associated with securing and vacating the dwelling than rental and can hinder job mobility. Since these transaction costs are known, individuals choosing homeownership have lower mobility expectations or higher expectations on their ability to cope with these future costs in case of job mobility. This greater residential stability, widely verified in the literature ([Boehm, 1981](#); [Smith et al., 1988](#); [Hammnett, 1991](#); [South and Deane, 1993](#); [Rohe and Stewart, 1996](#); [Hendley, 1998](#); [Gobillon, 2001](#)), influences both job location (and therefore the job matching quality) and the job search behaviour.

From this point of view, the recent subprime mortgage crisis illustrates the relevance of these questions. [Lockhart \(2010\)](#), President and Chief Executive Officer of the Federal Reserve Bank of Atlanta, indicates that the proportion of individuals living in a county or state different than the previous year was the lowest recorded in more than fifty years of data. Because of the collapse of housing prices, many U.S. households now have negative equity and they just can not afford to move for a new job. This is for Lockhart one of the reasons of the depressed labour market.

However, the statistical evaluation of homeownership consequences on labour market remains delicate. On the one hand, one has to be able to isolate the true impact of residential status from the one of unobservable factors that could be correlated with. Indeed, many (especially macroeconomic) studies dealing with interactions between labour and housing markets used only few control variables. In those cases, it is very likely that causal influence that we find between homeownership and labour market performances only reflects individual unobserved characteristics that would be correlated with residential status and would be therefore omitted in econometric specifications. On the other hand, evaluations must take into account the bidirectional interactions between professional and residential choices. For example, job mobility is possible under residential mobility status and children leave their parents' home, and then purchase their home only if they have a sufficiently stable job situation. The decisions about home purchases and labour market participation are also often simultaneous. A cor-

rect econometric specification must also adequately deal with the endogeneity of homeownership with individual behaviours on job market.

Our survey will put the emphasis on the empirical validity of theoretical arguments that explain the differences in behaviours between owners and renters on the job market. We will explore controversies with the different econometric methods that were used and the various definitions of residential status that were adopted. We will show that some of them disappear once the econometric issues of individual unobservable heterogeneity and of endogeneity are addressed and once the distinctions between the different residential status are more precise. Indeed, the recent literature shows that owners do not behave the same way whether they are outright or with mortgage homeowners. The same holds for renters with the distinction between private and social renting.

Since the original [Oswald \(1996\)](#)'s hypothesis analyses the relationship between homeownership and the unemployment rate, the first section will evaluate its validity on macroeconomic data. But it will also extend the survey to microeconomic data by looking at the probability to be unemployed or the duration in unemployment. However the situation of unemployment can not be the only measure of labour market performances. That is why the next two sections consider the issues of the status in employment (employment duration, wages, job downgrading) and the labour market participation. Section 5 concludes.

## 2. Homeownership and unemployment

One can wonder whether homeownership has consequences on job search and then indirectly on unemployment rate. Can the policies in favour of homeownership put the unemployment reduction off? This question was one of the most discussed in the literature about interactions between labour and housing markets. The debate was initiated in the nineties by [Oswald \(1996, 1998, 1999\)](#). His starting point was the observation of a parallel evolution between the different housing occupations and the aggregate unemployment rate. During the last decades, most European countries have experienced a strong increase in both the proportion of homeowners and the unemployment rate. Oswald proposed several underlying mechanisms for this positive relation between these two variables that subsequently kept on being tested with econometric models based on macroeconomic and microeconomic data.

### 2.1. *Oswald's hypothesis: theory and extensions*

According to [Oswald \(1996, 1998, 1999\)](#), the differences between the status of owners and renters can provide an alternative explanation to the usual arguments

(size of the unemployment benefits, trade union power, wage rigidity, tax rates, *etc*) for the international or regional differences in unemployment rates both in Europe and in the U.S. With macroeconomic data on the main OECD countries between 1960 and 1990, he showed a positive and significant relation between the aggregate unemployment rate and the fraction of homeownership. Although this so-called Oswald's hypothesis is based on macroeconomic data, it is essentially justified by microeconomic arguments.

Oswald (1999) suggests several channels, mostly based on the idea that homeownership hinders the job mobility that is so necessary to an efficient labour market. High mobility costs associated with homeownership would have an impact on three kinds of agents: unemployed homeowners, employed homeowners and all unemployed people (including renters). First, homeownership limits the geographic area where unemployed individuals could find a job and this reduces their job search efficiency. If this assumption is true, an increase in homeowners should lower matching opportunities between job seekers and vacancies, raising the unemployment rate. Green and Hendershott (2001b) add that housing becomes an illiquid asset in bad states of the economy, thereby aggravating the immobility of homeowners in times when they need most to be mobile. As mentioned in the introduction of this survey, this issue might particularly relevant in the current context of the subprime crisis. Second, the mobility constraints imposed by homeownership have a negative impact on job matching for employed homeowners. They are less willing than renters to seek for a new job and/or do it in a smaller geographic area. They are therefore deprived of interesting job opportunities that would have improved the quality of their job matching. Homeownership prolongs poor job matchings, making the economy less efficient (higher production costs, cuts in real incomes) that could lead to long-run job destructions. Third, housing markets with a high proportion of homeowners prevent unemployed (and especially the youngest without financial wealth) from finding dwellings, close to the jobs they aspire to. Again, it reduces the matching possibilities between unemployed and vacancies.

From a general point of view, Oswald argues so that when rigidity in housing market reduces aggregate efficiency in the economy, this may also lead to higher unemployment. Two indirect effects could strengthen the direct impact of mobility constraints on the unemployment rate. On the one hand, homeowners are more likely than renters to lobby for preventing companies from investing in residential areas. On the other hand, homeowners accept jobs far away from their home, which leads to traffic jams and thus raises labour costs. These phenomena harm the economy as a whole and lead to job destructions.

The discussion on the direct effects of high mobility costs for homeowners



on unemployment was extended to microeconomic stylized job search models. Their main contribution is to show how important it is to distinguish search behaviours on local labour markets (not involving a change of residence) and on distant labour markets (where a change of residence would be necessary). For example, [Munch et al. \(2006\)](#) assume that reservation wages can depend on many labour market features. They acknowledge that homeownership hampers geographical mobility and the will to move out for a new job. Nevertheless, they consider that homeowners accept lower reservation wages to remain close to their home or, conversely, have very high wage claims for distant jobs. The equilibrium of their model is characterized by a reservation wage that is equal for renters on all markets and that is bounded by homeowners' ones on local and distant markets. Thus, unemployed homeowners should have higher transition rates into employment in the local labour market than renters while they should have lower transition rates into jobs in regions outside the local labour market. The net effect of the housing tenure on the unemployment rate is theoretically ambiguous and needs to be empirically tested. For Oswald's hypothesis to be true in such a model, there should be many more job offers on distant markets with a large wage reservation gap between renters and owners.

[Munch et al. \(2006\)](#)'s model is refined by [van Vuuren and van Leuvensteijn \(2007\)](#) who integrate differences in unemployment benefits between renters and homeowners and examine their impact on reservation wages. They assume that renters receive benefits as long as they are unemployed while homeowners have benefits for only  $T$  periods after they become unemployed. This implies a decrease in reservation wages for homeowners on local market until  $T$  and a subsequent constant reservation wage. They conclude that, unemployment durations are unambiguously longer for renters than homeowners but, unlike [Munch et al. \(2006\)](#), there is indeterminacy on the distant market: homeowners' reservation wages are not necessarily higher than renters' and are a function of the amount and duration of benefits. The impact of the residential status on the overall hazard rate is therefore also undetermined, which underlines the need for empirical research.

## 2.2. Empirical validity on macroeconomic data

[Oswald \(1996, 1998\)](#) estimates the equation (1) by OLS for OECD countries over 1960-1990 but also for regions of different countries (France, the United Kingdom, the United States, Italy, Sweden, Australia, Canada, Finland, Spain):

$$U_i = \beta_0 + \beta_1 HO_i + v_i \quad (1)$$

where  $U_i$  represents the unemployment rate in the country or region  $i$  and  $HO_i$  the proportion of homeowners both in level and growth rate. The unobserved

heterogeneity is sometimes controlled by the introduction of fixed effects. His conclusion is that an increase in the homeowner rate by 10% would cause an increase in the unemployment rate by around 2% both at the regional and national levels. Many studies replicated Oswald's analysis with different data and richer econometric specifications.

At the disaggregated level for regions or states, the estimation of (1) on Finnish data by [Pehkonen \(1999\)](#) and on U.S. data by [Partridge and Rickman \(1997\)](#) yields similar conclusions with an increase in unemployment rate by 1 to 2% after an increase in the homeowner rate by 10%. [Nickell \(1998\)](#), [Nickell and Layard \(1999\)](#) and [Belot and Van Ours \(2001\)](#) use extra labour market explanatory variables (employment protection indices, replacement rate, unemployment benefit duration, active labour market policy, trade union power, *etc*) and take into account panel data dimensions. They confirm that the homeowner rate has a significant and positive impact on national unemployment rate in OECD countries.

However, the most recent macroeconomic studies do not bring so strong a support to Oswald's hypothesis. In addition to institutional features, [Nickell et al. \(2005\)](#) include the lagged unemployment rate, labour demand and money supply shocks and the real interest rate into their regressions. They find a non significant coefficient for homeownership rate for 19 OECD countries over 1961-1995. It is therefore plausible that the occupational status variable did not capture only its own influence in previous studies. At the disaggregated level, [Gregg et al. \(2004\)](#) find similar results: although homeownership significantly raises unemployment for United Kingdom regions in a regional fixed effect model, the relation turns significantly negative once other relevant regional characteristics are included. [Green and Hendershott \(2001b\)](#) show the lack of robustness of Oswald's results for the 51 U.S. states with equation (1). [Green and Hendershott \(2001b\)](#) run this regression for different groups and show that Oswald's results only hold for people between 35 and 64 and that it is often non significant if restricted to household heads. [Flatau et al. \(2002b\)](#) confirm unstable coefficients on Australian data when adding other explanatory variables in Oswald's specification. They also show how important it is to take into account that homeowners can either be outright or with a mortgage owners and that rental can be public or private: results can be very different for these subgroups.

Considering these limits, [Garcia and Hernandez \(2004\)](#) and [Coulson and Fisher \(2009\)](#) use an alternative econometric approach to test Oswald's hypothesis on macroeconomic data. Unlike previous studies, they adopt simultaneous equations to handle the endogeneity problem between homeownership and unemployment. More precisely, [Garcia and Hernandez \(2004\)](#) estimate the following system

by the three-stage least squares procedure (3 SLS) with 1991 cross-sectional data for the 46 Spanish provinces:

$$\begin{cases} \ln(HO_i) = \alpha_0 + \alpha_1 Pop2034_i + \alpha_2 DISE_i + \alpha_3 WI_i + \alpha_4 \Delta C_O / C_{R_i} + \alpha_5 U_i + \epsilon_i \\ \ln(U_i) = \beta_0 + \beta_1 Pop1524_i + \beta_2 LINC_i + \beta_3 \ln(U89_i) + \beta_4 HO_i + \eta_i, \end{cases} \quad (2)$$

where  $Pop2034$  is the proportion of people between 20 and 34 years of age,  $DISE$  and  $WI$  are the proportion of divorced and widowed people in each province,  $\Delta C_O / C_R$  measures the relative user cost of owning and renting,  $Pop1524$  is the share of the working-age population (15 and 24),  $LINC$  is the logarithm of per capita disposable income at the provincial level and  $U89$  the two-year lagged unemployment rate to take hysteresis into account.

[Garcia and Hernandez \(2004\)](#) draw opposite conclusions to Oswald's hypothesis for Spain:  $\alpha_5$  and  $\beta_4$  are significant but negative. An 10% increase in the homeownership rate is associated with a 2.2% decrease in unemployment rate. Simultaneously, unemployment strongly discourages homeownership.

[Coulson and Fisher \(2009\)](#) use a similar model (equations 2) but include the percentages of migrants in the state, of the population with a 4-year college degree, of Hispanic or Afro-American in their unemployment equation. They find with U.S. data that an increase by 10% in the homeowner rate lowers the unemployment rate by about 11%.

These mixed macroeconomic results make Oswald's argument less convincing. However one can not draw final conclusions since aggregated data are probably not robust enough to underlying microeconomic behaviours. Indeed, aggregate results can reflect the heterogeneity of individual behaviours only under particularly severe aggregation conditions that are rarely met. Furthermore, [Green and Hendershott \(2001b, 2001a\)](#) note that these results are subject to possible selectivity bias. The significance of homeowner rates in such regressions can reflect individuals characteristics inherent to the owners than the true effect of the tenure status. This selection rule can not be ignored in individual residential choices and can not be perfectly controlled with aggregated data even with [Garcia and Hernandez \(2004\)](#) and [Coulson and Fisher \(2009\)](#)'s methodology. Using individual data allows to adequately solve these problems.

### 2.3. Empirical validity on microeconomic data

Empirical studies with microeconomic data, in particular those paying attention on unobserved heterogeneity and endogeneity, argue for a stronger and stronger refutation of Oswald's hypothesis. Some of them also find that out-right owners and owners with mortgages do not conduct their job search the

same way since they have different financial responsibilities. Two different empirical methodologies have been mainly investigated: modelling the probability to be unemployed or the unemployment duration as a function of the residential status.

### 2.3.1. Probability to be unemployed

Coulson and Fisher (2002) use a probit model to test the hypothesis that homeowners are more likely to be unemployed than renters. Their dependent variable is a dummy variable equal to 1 if the individual is unemployed and 0 otherwise. The influence of the residential status is simply measured by a dummy explanatory variable equal to 1 in case of homeownership and 0 otherwise. Using the 2000 census U.S. data (“*Current Population Survey (CPS)*”) and the 1992 survey on incomes (“*Panel Study of Income Dynamics (PSID)*”), they show that the probability to be unemployed is significantly and negatively correlated with homeownership, contrary to Oswald’s hypothesis. However, this work, even based on microeconomic data, ignores some biases related to the omission of unobservable components and to the endogeneity of housing tenure types.

Arulampalam et al. (2000) refine this model by using the longitudinal dimension of the *British Household Panel Survey (BHPS)* over 1991-1995 to take individual unobserved heterogeneity into account. With a random effects probit, they confirm that homeownership reduces the probability of being unemployed for the male British population. The justification of this result relies on the incentives imposed by the long-term financial constraints homeowners face. They are urged to intensively search for work when they are unemployed and to work hard to limit unemployment risks when they already have a job. Coulson and Fisher (2009) and Flatau et al. (2003) explicitly focus on the endogeneity of residential status. Coulson and Fisher (2009) use their initial *CPS 2000* data and reject the exogeneity of homeownership variable. Flatau et al. (2003) use Coulson and Fisher (2002)’s methodology with Australian data (*Survey of Income and Housing Costs 1994-1997*) and show that homeownership is endogenous in such models. Therefore, they recommend the instrumental variables approach<sup>1</sup> for robust conclusions: it consists in replacing the dummy variable of residential status by the predicted probability to be homeowner that is estimated in a first step with an auxiliary probit. Coulson and Fisher (2009) and Flatau et al. (2003) conclude also that the homeownership (once instrumented) remains significantly negative. The endogeneity correction on U.S. and Australian data confirm the previous results: Flatau et al. (2003) show that a 1% increase in the predicted probability to be homeowner reduces the probability to be unemployed by 0.24% for men

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<sup>1</sup>For details on instrumental variable method, see Heckman (1979) for instance.

and 0.19% for women. [Flatau et al. \(2003\)](#) refine their analysis by decomposing the residential status in five categories<sup>2</sup>: outright owners, owners with mortgages, private renters, public renters and rent-free. They confirm [Arulampalam et al. \(2000\)](#)'s results: homeowners with mortgages with the strongest financial constraints have a twice as low probability to be unemployed than outright owners who are themselves less exposed to the unemployment risk than private renters and even less than the other categories (public renters and free-rent).

None of these studies about the influence of homeownership on unemployment probability supports Oswald's arguments. However, their conclusions should be confirmed with models that both deal with individual unobserved heterogeneity and endogeneity. Moreover, one has to keep in mind that the robustness of the instrumental variables approach depends on the possibility to find a suitable set of instruments. In our case, they must be variables that predict homeownership but play an insignificant role in labour market outcomes. Such variables are difficult to come by. Consequently, choosing such variables is often very hard and even arbitrary. [Flatau et al. \(2003\)](#) use the age of individuals which is debatable since it is well known that youngest have a higher probability to be unemployed than the rest of labour force. Their conclusions must therefore be taken with caution. [Coulson and Fisher \(2009\)](#) prefer to use the state marginal tax rate and the sex of children in the household. These instruments look more defensible *a priori*. As a consequence, the justification of instruments is crucial: different instruments could yield highly different results. But such caution also applies when treating unemployment duration.

### 2.3.2. Unemployment duration

Empirical works on unemployment duration are more frequent but give more controversial results. Again, one can note that models are more and more sophisticated. The first study with microeconomic data is done by [Goss and Phillips \(1997\)](#). They indirectly evaluate the impact of residential status on unemployment duration with distinct parametric hazard models for owners and renters. Then, they substitute the mean of each explanatory variable for each group in the regression for the other group and compute the impact of homeownership on unemployment duration. With the U.S. *PSID 1986* data, they find that ownership reduces the unemployment duration by 11.6 to 17.8 weeks depending on the method. This work was very innovative since it dealt with the main issues associated with the measure of the homeownership's consequences on labour market:

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<sup>2</sup>The only methodological difference is that predicted probabilities of residential occupation are given by a multinomial logit instead of a simple probit.

from a theoretical point of view with the need to make a distinction between owners with or without mortgages and on the empirical ground with endogeneity and selection biases. Subsequent studies used the same approach by focusing on these different aspects, with the exception of [Coulson and Fisher \(2002\)](#). They model unemployment spells with Weibull parametric duration model<sup>3</sup> where homeownership is used as an explanatory variable with a simple binary variable. With the U.S. *PSID 1992*, they find that homeownership exerts a significant and negative influence on the length of the spell. However, these results should be interpreted with high caution since they ignore the endogeneity of the residential status and because of their parametric specification. The assumption of Weibull density restricts the probability of leaving unemployment to be monotonic in the length of the spell, which is not necessary true. The choice of more general distributions such as generalized gamma or Sigh-Maddala would have raised this restriction.

[Green and Hendershott \(2001a\)](#) and [Brunet and Lesueur \(2004\)](#) try to solve this endogeneity problem by using a two-step instrumental variable regression. In a first step, it consists in estimating a probit tenure choice equation and in a second step they use the predicted ownership rather than actual ownership, in the unemployment duration estimation. [Green and Hendershott \(2001a\)](#) use the U.S. *PSID 1988-1991* data and find that unemployed homeowners take significantly more time to find a job than renters, as suggested by Oswald. When aggregating this individual effect, they evaluate that an increase in the owners rate by 10% is associated with an increase in the unemployment rate by 0.25%, which is only a small fraction of [Oswald \(1996\)](#)'s result. However, this work suffers mainly from three limits: i) the duration model is based on Weibull distribution ii) the instruments are the dummy variables that characterize each U.S. state, which is highly questionable iii) the heterogeneity of unobserved components is not taken into account.

[Brunet and Lesueur \(2004, 2009\)](#) address these criticisms with the French data of the *Trajectoire des Demandeurs d'Emploi – Marché Local du Travail* survey on three French regions (Ile de France, Nord, Provence-Alpes-Côte d'Azur). This large database allows to use more convincing instruments that both reflect characteristics of local housing markets and of the rental housing and that capture the relative cost of renting compared to ownership: price indices or rents in the neighborhood, vacancy rates, rate of homeowners in the region or the average distance to jobs. They ran different parametric and non-parametric estimations and their trials indicate that the log-normal distribution fits best their data, meaning that hazard is not monotonic. Finally, they control for the unobserved heterogeneity with a gamma distribution. Their results do not reject a

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<sup>3</sup>For more details on the duration models, see for instance [Kiefer \(1988\)](#) and [Lancaster \(1990\)](#).

significant and positive effect of homeownership on the unemployment duration. The lack of representative national data in their sample should inspire caution. That is why Brunet et al. (2007) refine the analysis with the French (the French data set of the 1994-2002 *European Community Household Panel*) and British (*BHPS 1991-2001*) data that are probably more representative. They also make a distinction between five occupation modes (outright owners and owners with mortgages, renters in the public sector, renters in the private sector and free renters). The choice of the residential status is modelled with a multinomial logit with age at the entry into the housing and the father's occupation as instruments. The predicted probabilities are thereafter used for the estimation of the unemployment duration model from a generalized gamma distribution. Brunet et al. (2007) do not entirely confirm Brunet and Lesueur (2004, 2009)'s conclusions: the unemployment duration is positively correlated (to a lesser extent in the United Kingdom) with the outright owner status but the correlation turns negative for owners with mortgage. This shows the relevance to isolate the specific effect of financial constraints of ownership with mortgage as already suggested by Böheim and Taylor (1999) and Arulampalam et al. (2000). Brunet et al. (2007) also show that renters in the private and public sectors in France would have equal hazard rates into employment *ceteris paribus* while in the United Kingdom, the access to public housing would have a negative discriminant effect on unemployment duration.

Flatau et al. (2002a) control for a third source of potential bias<sup>4</sup> in their estimation of the impact of residential status on unemployment duration: the sample selection. In order to have valid conclusions for the whole labour force although their sample is only made of unemployed people, they add the inverse Mills ratio as an explanatory variable of unemployment duration. This ratio is computed with a probit model giving the probability to be unemployed or not. They estimate the following Cox proportional hazard model:

$$D_i = h(X_i\gamma + \beta_1\widehat{HO}_i + \beta_2\varepsilon_i + \beta_3\lambda_i + u_i) \quad (3)$$

where  $D_i$  is the duration of unemployment,  $h$  the hazard function,  $\widehat{HO}_i$  the predicted probability of owning to control for endogeneity,  $\varepsilon_i$  the probit error term explaining the residential status in order to control for the individual unobserved heterogeneity and  $\lambda_i$  the inverse Mills ratio from the unemployment probit to control for sample selection bias. Australian data from the *Survey of Income and Housing Costs (SIHC) 1994-1997* enable Flatau et al. (2002a) to use a relative cost of owning variable (ratio of the owner's user cost to the rent) as an instrument for residential status. They find that the correction term of the sample

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<sup>4</sup>The first two were the endogeneity of the status variable and the unobserved heterogeneity.



selection is significant and this justifies its inclusion to avoid biased interpretations. Unlike previous studies on France, they conclude that homeowners find a new job much more quickly than renters (only in the private sector). The hazard ratio is 1.839, which means that predicted homeowners have a 84 percent higher risk of exiting unemployment than renters. This raises some doubts about the underlying mechanism of Oswald’s hypothesis<sup>5</sup>.

That is why the most recent studies ([Munch et al., 2006](#); [Barceló, 2006](#); [Battu et al., 2008](#); [van Vuuren, 2009](#)) use job search microeconomic models à la [Munch et al. \(2006\)](#) as starting point. Their goal is to check whether the return to employment on local labour markets was easier for homeowners than for renters or more difficult when it was associated with residential mobility as predicted by [Munch et al. \(2006\)](#). These works share the same econometric methodology: the transitions on the labour market are represented by competing-risks mixed proportional hazard models with two possible exits from unemployment: a new job on the local market ( $l$ ), a new job on the non-local market implying a residential mobility ( $nl$ ). Instead of a two-stage estimation process, they are jointly estimated with full information maximum likelihood approach, where the probability to be homeowner is modeled with a logit<sup>6</sup>. More precisely, they use the following framework:

$$h_r(t|HO_t, X, v_r) = h_{r0}(t) \exp(X\gamma_r + \beta_r HO_t + v_r), \quad r = l, nl \quad (4)$$

$$P(HO_t = 1|X, v_h) = \frac{\exp(X\gamma_h + v_h)}{1 + \exp(X\gamma_h + v_h)} \quad (5)$$

where  $h_{r0}(t)$  is the base hazard specific to each exit,  $v_r$  and  $v_h$  represent the unobserved heterogeneity modelled with mass points in a non-parametric way and therefore all correlations are allowed [See [Heckman and Singer \(1984\)](#) for further details on this methodology].

The first advantage of this model is the parameter estimation efficiency gain due to the single-step estimation with the inclusion of all the correlations between unobserved heterogeneity terms. The second advantage is that it allows

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<sup>5</sup> With the same data set, [Flatau et al. \(2003\)](#) estimate a similar duration model, but make the usual distinction between the five occupation statuses. They only present the results where the residential status variables are not instrumented since they seem to pass the exogeneity test. Nonetheless, one can have some doubt on the robustness of this test since it only relies on the age as the sole instrument. But still, their result do not confirm Oswald’s hypothesis: for instance, they find that male owners with mortgages have higher hazard rates to employment than men renting in the private sector who would have similar *ceteris paribus* unemployment durations than outright owners.

<sup>6</sup> [Battu et al. \(2008\)](#) distinguish three occupation modes (owners, renters in the private sector, renters in the public sector) and consequently use a multinomial logit instead of a simple one. [van Vuuren \(2009\)](#) models housing decision as a probit model.



to exploit multiple spells of data in order to identify the effect of the residential status on the exit rate from unemployment, which avoids to find the suitable instruments for the choice of housing occupation. Indeed, this approach only requires the observation in the data of a sufficiently high number of individuals who experience unemployment periods both as renters and homeowners (Honoré, 1993). Administrative Danish 1997-2000 data used by Munch et al. (2006) and the BHPS 1991-2003 data used by Battu et al. (2008) enable them to escape the problem of the choice of instruments to control for endogeneity. However, they checked the validity of their results by applying the instrumental variable method<sup>7</sup> which eventually does not alter their conclusions.

Munch et al. (2006) empirically confirm their theoretical predictions for Denmark: on the one hand, homeownership reduces the hazard rate out of unemployment to non local jobs (jobs associated with mobility) and on the other hand it has a positive effect on the return to employment to the local market. However, they show that the latter effect is the stronger: therefore homeowners have, everything else equals, lower unemployment duration than renters, contrary to Oswald's predictions. van Vuuren (2009) has similar results for the Netherlands but the negative impact on the probability of leaving unemployment for non-local labour market is statistically insignificant. Moreover, the impact in the local market is not very large. In any case, the overall impact of homeownership on the exit rate from unemployment holds positive as in Munch et al. (2006). On British data, Battu et al. (2008) find that exits from unemployment are not statistically different for owners and private renters on both markets (local and non local). However, social renters losing their jobs are less likely to accept a distant job than private renters are. At last, Barceló (2006) uses data from the *European Community Household Panel 1994-1997* for Germany, Denmark, Spain, France, Italy and the United Kingdom. She confirms the negative impact of homeownership on the transition to jobs associated with mobility. However, unemployment duration is the same for renters and owners on the local market.

What we can infer from this is that the predictions of Munch et al. (2006)'s job search model are not perfectly robust yet. The recent studies clearly show that the understanding of the impact of residential status requires sophisticated econometric methods on disaggregated data that distinguishes labour markets according the required mobility for the return to employment. Even if a consensus on the Oswald's hypothesis is still far, the most robust econometric studies seem indicate that homeowners have a lower reemployment probability when it implies a residential mobility.

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<sup>7</sup>Munch et al. (2006) use the regional homeowner rate and Battu et al. (2008) the father's job as instruments. Barceló (2006) who does resort to the multiple spells approach uses the homeowner rate and institution differences among the European countries of their sample.

### 3. Homeownership and status in employment

In recent years, in addition to papers on the impact of homeownership on the ability of unemployed to get a new job, some studies have emerged on the relation between residential status and job stability. They aimed at determining whether homeownership was a hindrance to job mobility for people already employed on the one hand and whether differences in transition on the labour market between renters and owners had an impact on wages on the other hand.

#### *3.1. Employment duration and labour market transitions*

The impact of homeownership on the employed labour force and not only on unemployed people was mainly analysed with the same type of arguments from job search models in the section 2. Indeed, the homeowner status is associated with higher transaction costs than for renters. Therefore, it might prevent from having a better job and then is a limit to job changes. According to [Burgess \(1992\)](#) and [van den Berg \(1990\)](#)'s job search models with explicit mobility costs, homeowners should have longer employment durations. They even show that, among employed workers, homeowners should experience all the fewer labour mobility episodes that their earnings are high because of the higher cost of quitting ([Burgess, 1992](#)) and because they are more likely to have spent more in their dwelling, which increases mobility cost in case of relocation ([van den Berg, 1990](#)).

However, [Munch et al. \(2008\)](#) transpose the predictions of their previous job search model ([Munch et al. \(2006\)](#)) to the working population and indicate that the process should be more complex. The impact of housing tenure on employment duration is undetermined. According to them, revealing the underlying mechanisms of this question requires to distinguish the different possible exits from employment (unemployment, new job, inactivity) and the behaviours towards local and non-local labour markets. As for transitions from employment into unemployment, they suggest that homeowners should less frequently resign and become unemployed than renters, everything else equals. Indeed, when unemployed, homeowners are less willing to search jobs requiring residential mobility and could accept wage cuts to stay close to their home. For job to job transitions, [Munch et al. \(2008\)](#) make two theoretical predictions: i) homeowners should accept job offers outside their local market less often than renters because of their higher mobility costs, leading to higher reservation wages; ii) homeowners should also have less frequent transitions to a local job than renters because of their higher productivity specific to their firm. Indeed, if their employers expect that homeowners are less eager to accept non-local job offers and are therefore more likely to keep their current jobs for a longer period, they will hire homeowners

or even offer them higher wages than renters to attract them. Firms should also grant more training to their homeowner employees because of the higher return of these investments in human capital. According to this process<sup>8</sup>, homeowners should have a higher on-the-job productivity than renters and therefore deserve higher wages. Furthermore, the higher the homeowners' wages, the less eager they are to accept other jobs, even on the local market.

Since theoretical arguments unambiguously conclude to a positive impact of homeownership on employment duration, its empirical validation has generated fewer studies than Oswald's hypothesis. Since these studies were developed very recently, they use the most sophisticated econometric techniques by taking the endogeneity of residential status and the unobserved heterogeneity into account. They rely on competing-risks mixed proportional hazard models as described in (4) and (5). [van Leuvensteijn and Koning \(2004\)](#), [de Graaff and van Leuvensteijn \(2007\)](#) and [de Graaff et al. \(2009\)](#) estimate a model of employment duration with three possible destinations : new job, unemployment and inactivity. By applying the instrumental variables approach to Dutch data from the *Income Research Data 1989-1998*, [van Leuvensteijn and Koning \(2004\)](#) find that homeownership does reduce unemployment risks for employees but plays no significant role on job to job transitions or on exits to inactivity. However, [de Graaff and van Leuvensteijn \(2007\)](#) and [de Graaff et al. \(2009\)](#) criticize these results for the choice of the instrument (the regional homeowner rate) is questionable and does not allow a good identification of the impact of residential status. That is why the latter make more robust estimations with a multiple-spell approach applied to the eight waves 1994-2001 of the *European Community Household Panel* for 14 European countries. [de Graaff and van Leuvensteijn \(2007\)](#) find that homeownership reduces employment changes by about 17%, unemployment risks by 24% and inactivity risks by 14%<sup>9</sup>. These estimations are then run country by country and confirm aggregate results except for Greece, Italy and Spain. It results that the impact of homeownership is particularly strong in the Netherlands, Luxembourg, Great-Britain and Portugal. On the contrary, it would be relatively small for South European countries such as Spain or Greece. The analysis is refined by [de Graaff et al. \(2009\)](#) who study the behavior of renters in the private sector compared to renters in the public sector. They find that the latter have a higher probability (by around 3%) to change jobs but they also have a higher risk (by 12%) to become unemployed. Their career would be less stable. However,

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<sup>8</sup>It is the same as the one developed by statistical discrimination models, [Lundberg and Startz \(1983\)](#)'s in particular.

<sup>9</sup>This regression is also presented in [de Graaff et al. \(2009\)](#). However, they compare homeowners with renters in the private sector only and not all renters. In this context homeownership reduces employment changes by 20% instead of 24% and have similar results for unemployment and inactivity risks.

their conclusions must be taken with care because they change quite a lot from a country to another when national estimations are run separately.

All these results are consistent with theoretical predictions of job search models. [Munch et al. \(2008\)](#) and [Battu et al. \(2008\)](#) focus on job-to-job transitions while making a distinction between those on the local labour market and those on the national labour market and associated with residential mobility. They estimate job duration models with respectively three (unemployment, local job and non-local job) and two (local and non-local jobs) possible transitions out of employment by the multiple spells approach<sup>10</sup>. [Munch et al. \(2008\)](#) confirm these results on Danish data over 1993-2001 that homeowners are less likely (29% less) to leave their job for unemployment than renters' in counterparts. They also have job-to-job mobility lesser than renter not only outside (by 14%) but also inside the local labour market (by 5%). From data of the *BHPS 1991-2003*, [Battu et al. \(2008\)](#) confirm that the negative impact of homeownership is stronger for transitions to a non-local employment: it would even be insignificant for job changes within the local labour market. Unlike [de Graaff et al. \(2009\)](#), they do not observe any significant differences in labour mobility rates between renters in the public and private sectors.

To sum up, empirical works seem to be in favour of theoretical predictions even if the positive effect of homeownership on job duration does not always turn out to be strong enough to be significant. [Munch et al. \(2008\)](#)'s arguments would probably deserve to be developed within an explicit job search model. Moreover, none of these studies make a distinction between the two categories of owners (outright or with mortgage) and the results for renters in the public sector still lack a wide agreement. Therefore, an interesting field for future research would be to refine both theoretical and empirical models to see whether the strongest financial constraints born by homeowners with mortgages have an impact on their job stability.

### 3.2. Wages

So far, the literature has focused on the impact of residential status on unemployment and employment durations and has overlooked the impact on wages. And yet, this question deserves attention and needs empirical answers: the theoretical arguments by [Coulson and Fisher \(2002, 2009\)](#) and [Munch et al. \(2008\)](#)

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<sup>10</sup>In order to test the robustness of their results, [Munch et al. \(2008\)](#) compare them with those obtained with instrumental variables method with regional homeowner rate, the residential status of the parents in 1980 and the homeowner rate in the city where the individual was born as instruments. The two identification strategies lead to similar results.

have opposite conclusions on wages. They stem from particular assumptions about the influence of homeownership on unemployment and the stability in the job.

[Coulson and Fisher \(2002\)](#) start from the idea that homeowners have longer unemployment periods to predict that their wages should be lower than renters'. Indeed, according to the wage bargaining theory, if the probability to be unemployed and the unemployment duration are higher for owners, employers should use their bargaining power and offer them lower wages. [Coulson and Fisher \(2009\)](#) explicitly model this intuition from a job search framework à la [Munch et al. \(2006\)](#) with wage bargaining. They show also that the renters' wages would be higher than the homeowners' because their geographic area where they could find a job is more vast, homeowners being reluctant to search in the non-local market. The less search intensity of the homeowners in the non-local market penalize them for the wage bargaining. [Coulson and Fisher \(2009\)](#) propose a second job search model, which does not distinguish the behaviours between the local and non-local markets. They start also from the assumption that homeowners and renters differ in their utility from unemployment. In particular, owners are assumed to be disadvantaged as compared to renters because in times of unemployment it is more costly to adjust their housing consumption or to move to a better-suited location for a new job. Consequently, conditional on employment, homeowners would accept lower wages than renters because their cost of being without work would be greater. Whatever the justifications, the [Coulson and Fisher \(2002, 2009\)](#)'s models predict a negative impact of the homeownership in the wages.

On the contrary, as already mentioned, [Munch et al. \(2008\)](#) start from the assumption that renters change jobs less often than owners. They would therefore have a higher firm-specific human capital accumulation, yielding higher wages.

We could add to these arguments that occupied homeowners are less eager to search for a new job because of higher mobility costs and they might miss interesting job opportunities improving their matching quality and thus indirectly their wages. However, homeowners are more involved in their social environment and benefit from better social networks that could generate good job opportunities.

Only a few studies resorted to econometric evaluation to see which of these opposite theoretical effects would eventually dominate the other. The first attempts were made by [Coulson and Fisher \(2002\)](#). On U.S. data from the *CPS 2000* and *PSID 1992*, they find that owners have significantly higher wages than renters with an OLS estimation of a wage equation. Of course, the reliability of these results is questionable since their method overlook the endogeneity of residential status. That is why they replicate their analysis in [Coulson and Fisher](#)

(2009) but use the instrumental variable method: they find that homeownership plays significantly and negatively on wages, while the obtained impact with the OLS estimation was in the opposite sense. All things being equal, American owners would have average wages less than 42% compared to renters. For Denmark, Munch et al. (2008) run a model of simultaneous equations of job duration, wages and choice of housing mode and find a wage premium of about 5% for owners.

Given the divergence between these first results, further works for different countries and different housing choices seem required to know the impact of residential status on wages. Different categories of employees should be considered such as those who experienced an unemployment spell in the previous year. It could be possible to determine whether people with residential status associated with the quickest hazards out of unemployment (in general homeowners with mortgages) do not take this decision of employment at the expense of their wage.

### 3.3. Job downgrading

That is why, Brunet and Havet (2009) study the impact of homeownership on the employed labour force from yet another angle, the job downgrading. The influence of the residential status on the job-match quality is *a priori* ambiguous. On the one hand, as already mentioned, it is plausible that homeowners favour housing amenities and value their family's stability, so that they are willing to accept some degree of mismatch between their qualifications and their job characteristics. Indeed, spatial mobility theories (Simpson, 1992; Buchel and van Ham, 2003, e.g.) suggest that due to high mobility costs, homeowners are less prone to make a residential move in order to take on a new job that would be a better match. On the other hand, by being more stable in employment, homeowners should have a higher level of specific human capital, and thus better intra-firm career prospects, that could counteract the negative effects.

Brunet and Havet (2009) use the French data set of the 1995-2001 *European Community Household Panel* to build both an objective measure as well as a subjective measure of job downgrading. The objective measure corresponds to a statistical measure of wage downgrading: this approach classifies individuals according to their schooling levels in five aggregated classes and considers individuals as job downgraded if more than 50% of individuals in the inferior education class have a higher wage. The subjective measure is associated to an affirmative answer to the following question: "In your opinion, do you have qualifications or skills which could allow you to work in a job demanding higher qualifications?". Brunet and Havet (2009) estimate a recursive bivariate probit that simultaneously models the probability to be homeowner ( $y_{ih} = 1$ ) and the probability to

be in a downgraded job ( $y_{id} = 1$ ):

$$y_{ih} = \begin{cases} 1 & \text{if } y_{ih}^* = Z_{ij}\gamma_h + u_{ih} > 0 \\ 0 & \text{if } y_{ih}^* = Z_{ij}\gamma_h + u_{ih} \leq 0, \end{cases} \quad (6)$$

$$y_{id} = \begin{cases} 1 & \text{if } y_{id}^* = y_{ih} \alpha + V_{ij}\gamma_d + u_{id} > 0 \\ 0 & \text{if } y_{id}^* = y_{ih} \alpha + V_{ij}\gamma_d + u_{id} \leq 0, \end{cases} \quad (7)$$

where the error terms ( $u_{ih}$ ,  $u_{id}$ ) follow a bivariate normal distribution. This model deals with the potential endogeneity issue of the homeownership variable and allows correlation between error terms of the both equations (downgrading and homeownership), which so allows controlling unobserved factors that influence both processes.

Their results show that other thing being equal, homeowners are more wage downgraded and feel more overeducated than renters (between 35% and 45% more). Consequently, [Brunet and Havet \(2009\)](#) conclude that homeownership could be a source of mismatch between workers and jobs on the French labour market. These results would probably deserve to be confirmed for other countries and to be completed by larger studies on the links between housing tenure and job satisfaction in order to better understand the mechanisms playing on the individual productivity.

#### 4. Homeownership and labour market participation

In order to know whether homeownership deteriorates or not the individual performances on the labour market, it is also interesting to know if homeownership has an impact on labour market participation. Do homeowners participate more to the labour market than renters? Does the homeownership process alter labour supply? We will show that the impact of homeownership is not limited to decisions subsequent to a home purchase: some effects on labour supply are noticeable sooner. Access to credit restrictions concerning the level of indebtedness and the level of income can lead household to alter its labour supply to relax these constraints. Since labour supply is rather inelastic for men, the literature has exclusively focused on women labour supply.

##### 4.1. Homeownership aspirations and labour supply

The difference in financial responsibility between owners and renters is the most common argument to explain the impact of homeownership on labour supply. Indeed, in many OECD countries, households wishing to purchase housing bear two types of conditions from banks and other credit institutions: the first



is related to the downpayment, that is the wealth steadily available, since households can not borrow more than a definite proportion of the value of the home they want to purchase. The second is related to their expected earning relative to the monthly payback of the loan. The former will have an influence on labour supply before the purchase while the latter has *a posteriori* effects.

There exist many ways to escape the downpayment constraint. In order to make saving easier, households eager to become homeowners can decide to live longer at their parents' house or to delay the childbearing. They can also increase their labour effort (participation, worked hours) and their earnings in order to increase their wealth and facilitate overcoming the downpayment constraint. Therefore, the desire of ownership would have a positive influence on labour supply before any purchase, especially for women. In particular, the labour supply of married women could be jointly determined with the prospective homeownership. If their husband is already employed, their participation to the labour market would be a way to meet the requirements for loans on the credit market.

Few empirical studies have focused on this relationship between labour supply and prospective homeownership. [Haurin et al. \(1996\)](#) use graphs from the *NLSY* U.S. data over 1985-1990 that display an upward trend in labour supply of young first-time home buyers the year before the purchase and the year of the purchase. They find that this trend is even more visible for young married women with a strong increase of worked hours in the year of home purchase. However, their conclusions are only descriptive: they do not estimate any labour supply function. To our knowledge, the only econometric papers on the link between labour supply and home purchase projects dealt with Japanese data. [Yoshikawa and Ohtake \(1989\)](#) use a switching model from a sample of renters: in a first step, they run a probit model of home purchase plan<sup>11</sup>. In a second step, they separately estimate the labour supply of married women separately for both renters with housing purchase plan and for renters without while paying attention to potential selection biases due to the restrictions of each sub-group. This econometric method enables to know whether the determinants of labour supply are the same for renter women planing to become homeowner or not. For example, [Yoshikawa and Ohtake \(1989\)](#) show that married-women's labour supply is increasing with wage for those having housing purchase plan and decreasing for the others. However it is not possible to evaluate the direct impact of the desire to change residential status. That is why [Moriizumi and Naoi \(2006\)](#) estimate a bivariate probit that simultaneously models the probability of having a home purchase plan ( $I_i = 1$ ) and of participating to the labour market ( $L_i = 1$ ) as well

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<sup>11</sup>The dependent variable is equal to 1 if the individual has a home purchase plan and 0 otherwise. They use a measure of their husband or wife's permanent income, housing prices, the household's assets, the household composition and the age as explanatory variables.



as their influence the one on the other. Their specification follows:

$$I_i = \begin{cases} 1 & \text{if } I_i^* = L_i\gamma_1 + X_{1i}\beta_1 + u_{1i} > 0 \\ 0 & \text{otherwise,} \end{cases} \quad (8)$$

$$L_i = \begin{cases} 1 & \text{if } L_i^* = I_i\gamma_2 + X_{2i}\beta_2 + u_{2i} > 0 \\ 0 & \text{otherwise,} \end{cases} \quad (9)$$

where residuals  $(u_{1i}, u_{2i})$  follow a joint bivariate normal distribution.  $\gamma_1$  and  $\gamma_2$  respectively measure the influence of labour market participation on home purchase plans and of these plans on labour market participation. [Moriizumi and Naoi \(2006\)](#) estimate this model but only with married women under 45 who lived in a rental housing from the *Keio Household Panel Survey 2004* (KHPS) - 279 observations - in order to only have first-time buyers. They find positive and significant  $\gamma_1$  and  $\gamma_2$ , meaning that the labour market participation plays in favour of home purchase plans and that, everything else equals, married women have a 2.4 times as high probability to work when they consider purchasing a home. They conclude that, in Japan, home purchase plans have a strong impact on labour supply before any purchase for married women, who accept job offers to relax down payments requirements. However, their econometric specification is not correct and their conclusions can not be considered as reliable. As shown by [Maddala \(1983\)](#), if endogeneous variables are introduced into each equation of a bivariate probit model, a problem of consistency happens. One absolutely has to specify a recursive model; otherwise, the sum of the joint probabilities is not equal to one, which causes serious problems for the interpretation. As a consequence, while [Moriizumi and Naoi \(2006\)](#) wanted to correctly estimate the impact of housing projects on the participation to the labour market, they should not have introduced  $L_i$  as an explanatory variable in (8). Their conclusions would deserve to be confirmed for Japan and other countries with more robust identification techniques.

#### 4.2. Residential status and labour supply

Only indirect effects of residential status on labour supply through the indebtedness constraint are examined in the literature. [Joesch \(1994\)](#) dealt first with this issue by studying whether homeownership had an impact on women decisions to have a job just after childbirth. From U.S. data of the *PSID 1983-1987*, she estimates a Cox hazard model with a dummy for residential status equal to 1 if ownership and 0 otherwise and finds that home-owning mothers return to job more quickly after childbirth than renters and that homeownership would increase the return to the job market by around 25%. [Joesch \(1994\)](#) reckons that financial constraints associated with ownership play an important role in

those decisions. That is why several authors have explicitly studied the links between women activity and these mortgage commitments but focused their work on homeowners only.

With a life cycle model, [Fortin \(1995\)](#) shows that the maximum gross debt service ratio allowed by lending institutions has a significant positive impact on the labour force participation rate and labour supply of Canadian married women. Would the mortgage had to suddenly stop, the average female's labour participation would be reduced from 77% to 72%. Among recent homeowner couples whose debt service ratio is near to the allowable limit without the wife's income, the female labour participation rate exceeds 95%. [Bottazzi \(2004\)](#)'s conclusions from the *British Household Panel Survey 1993-2000* are very similar: a fixed-effect logit model is used to estimate a women participation equation. The debt service ratio effect is found to be significant and positive. Technically speaking, [Bottazzi \(2004\)](#)'s conclusions are more robust than [Fortin \(1995\)](#)'s because the use of panel data enables her to take into account the unobserved heterogeneity and because exogeneity tests are made and accepted for the debt service variable. To avoid any endogeneity problem, [Boca and Lusardi \(2003\)](#) jointly model the women labour market participation and the borrowing decision to purchase a home. They confirm on Italian data that among homeowners, the presence of a loan increases the probability for married women to have a job. With an equivalent econometric specification, [Houdré \(2008\)](#) obtains similar conclusions from the French data *Patrimoine 2004*. He even argues that women increase their labour participation from a debt ratio very close to the ratio usually retained by financial institutions to allow a loan to their customers.

Moreover, [Houdré \(2008\)](#) directly deals with the influence of residential status on labour supply and does not limit his sample on homeowners only, like [Fortin \(1995\)](#), [Bottazzi \(2004\)](#) and [Boca and Lusardi \(2003\)](#). He simultaneously models the probability of being homeowner ( $T_i = 1$ ) and to participate to the labour market ( $L_i = 1$ ) with a recursive bivariate probit where  $T_i$  is an explanatory variable in the labour market participation equation. He shows that in France homeownership significantly and positively impacts women labour market participation.

All these studies show that housing tenure changes have a strong impact on labour market participation of households all over their life cycle. Homeownership tends to increase it. These studies would deserve to be refined by dynamic analyses of labour supply, from long-period data for both professional and residential statuses.

## 5. Conclusion

The French economic policy choice to make France a “nation of homeowners” has raised a new interest for the relation between homeownership and the performances of labour market. For a long time, this question has lead to a rather pessimistic conclusion, known as Oswald’s hypothesis, that stated that the higher the proportion of household owner of their home, the higher the unemployment rate, as in Spain for instance. This simple conclusion needs correcting on several aspects.

First, labour market performances can not be summed up with the unemployment rate only. It was shown that homeownership, through the financial constraint it causes, increases women labour supply. In this case, Oswald’s hypothesis could remain valid while the number of people having a job would be higher. Linking homeownership and lower labour market performances would be therefore misleading. The Oswald’s hypothesis would only be a partial answer.

Second, the question of the residential status is more complex than the mere opposition between owners and renters. Data reveal to what extent the former can behave very differently if they still have loans to reimburse or not. Renters are also different if they rent their home from public or private sectors.

This second objection illustrates the limits of macroeconomic data for such studies. But often, the theory can not provide a clear cut answer between opposite effects. Wages are a good example since reservation wage will be lower for renters for jobs that do not imply any mobility but, on the other hand, employers could be more eager to invest in the training of their owner employees who would be less willing to move. Econometric studies on individual data only can bring pieces of answer. They tend to deny Oswald’s hypothesis: homeowners have a lower probability to be unemployed (notwithstanding the quality of job matching). Encouraging homeownership would therefore be perfectly profitable and every measure that would reduce transactions costs (conveyancing costs in particular) could have positive effects. But these studies also show that the unemployment duration tends to increase for homeowners. In countries where this duration is already long (as in France), this should not be overlooked.

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